NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

Communicable Diseases Communiqué

AUGUST 2018, Vol. 17(8)

CONTENTS

1 ZOONOTIC AND VECTOR-BORNE DISEASES

a An update on rabies in South Africa

Rabies was confirmed in a four-year-old boy from Adams Mission (close proximity to Amanzimtoti, Durban), KwaZulu-Natal Province (KZN). The child died at the end of July 2018, following an illness characterised by confusion, agitation and hyperactivity, insomnia, malaise, seizures and hypersalivation. The patient was reportedly bitten by a dog early July 2018 and no post-exposure prophylaxis (PEP) was sought. Rabies was confirmed by rabies fluorescent antibody test on a post-mortem collected brain sample.

A total of eleven human rabies cases has been confirmed in South Africa for 2018 to date. This includes six cases from KZN (including the case reported here) and five cases from the Eastern Cape Province. In addition, two probable cases of rabies were reported from the Eastern Cape Province. These cases could not be confirmed through laboratory testing, but fulfilled the clinical case definition of rabies and included a history of exposure to a likely rabid animal. In comparison, there were six confirmed cases for 2017 and two confirmed cases for 2016.

The resurgence of canine-mediated rabies deaths in humans in KZN over the past six months is the consequence of a steadily-declining number of dogs being vaccinated each year. It is also concerning that none of the human cases in KZN this year sought preventive rabies PEP after being exposed to the virus. Continued support for dog rabies control has dwindled in the light of the successes in dog rabies control attained between 2009 to 2014. During this time an internationally supported project to eliminate dog rabies in KZN was ongoing with great success, with the number of human rabies cases decreasing to the lowest recorded in three decades. Consequently, as the incidence of the disease declined in humans, it also become more problematic to maintain awareness of the disease, both in the general public and the medical fraternity.

Preventing human rabies through PEP is costly, and it is estimated that more than ZAR 70 million is spent on the provision of rabies vaccines and immunoglobulin products to prevent human rabies infections (https://endrabiesnow.org/stories/view/spending-money-on-rabies-prevention-is-an-investment-we-cant-afford-not-to). This is contrasted by the knowledge that dog vaccination by the Provincial Veterinary Services remains the quickest and cheapest way of preventing human deaths. However, dog vaccination remains a challenge in the face of many operational and budgetary constraints. Multi-sectoral commitment and leadership support is required to effect rabies elimination in dogs and in doing so, save human lives.

A joint call through the World Health Organization (WHO), World Organisation for Animal Health (OIE) and Food and Agriculture Organization of the United Nations (FAO) is urging governments around the globe to prioritise dog rabies control, and in doing so to eliminate human rabies by 2030 (see http://www.who.int/neglected_diseases/news/Global_framework_eliminate_human_rabies_transmitted_dogs_2030/en/). It is imperative that solutions for the current problems in rabies control in South Africa be actively sought, if the country is going to heed this call.

Source: Centre for Emerging Zoonotic and Parasitic Diseases, NICD-NHLS and KZNDARD Veterinary Services; januszp@nicd.ac.za

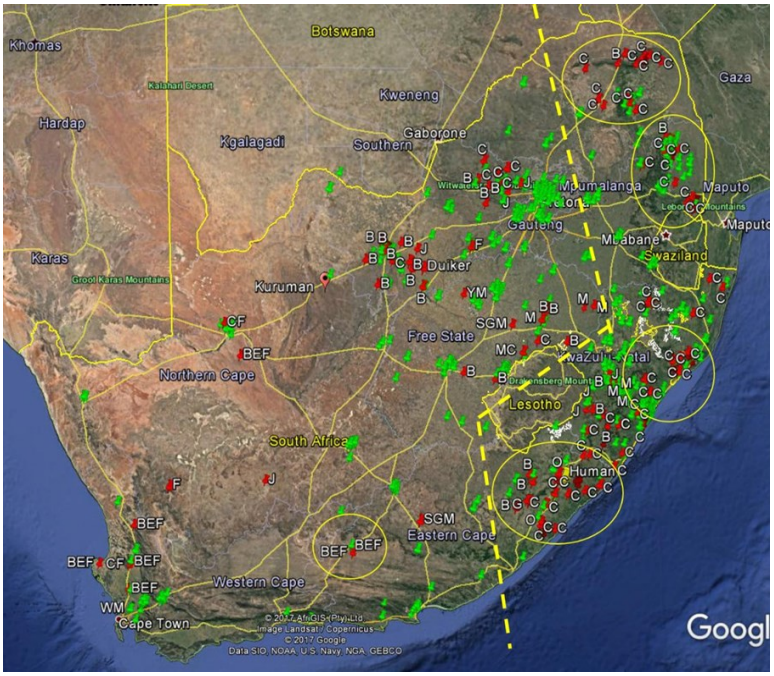

Figure 1. The distribution of animal rabies cases in South Africa for 2018 to date. The green flags indicate animals that tested negative for rabies. The red flags indicate animals that tested positive for rabies. The dog rabies focal points are indicated in yellow circles. The main concern for dog rabies currently, is the continuing outbreak in KwaZulu-Natal and Eastern Cape provinces. Focal points for dog rabies are however also reported in Limpopo and Mpumalanga provinces. Dog rabies mainly affects the eastern part of South Africa (as indicated by the dotted line).

Abbreviations: B: bovine (cattle); BEF: bat-eared fox; C: canine (dog); CF: cape fox; J: jackal; O: other animal; SGM: small grey mongoose; WM: water-mongoose; YM: yellow mongoose.

b A case of schistosomiasis masquerade in Western Cape Province

During July 2018, a 56-year-old female patient presented to an orthopaedic surgeon with a complaint of sudden onset unexplained left-sided iliopsoas bursitis, without any preceding history of trauma or overtraining. Travel history included two weeks in Malawi three months prior to presentation, during which high risk exposure to potentially contaminated water (Lake Malawi) had occurred. Three weeks before the onset of symptoms, the patient had spent two weeks in the Okavango Delta, northern Botswana. Anti-malarials had been taken during the visit to Botswana.

Past medical history of note included repair of bilateral inguinal hernias many years before, as well as orthopaedic fixation of T11-L1 vertebrae in 2013 after an accident.

The main clinical features included fluctuating areas of inflammation in both inguinal regions, an associated unilateral hip joint effusion that required drainage of sterile synovial fluid, eruption of cutaneous itchy papules mainly on the back and scalp (11 days after initial symptoms), and progressive disabling lumbar back pain. Patient had no haematuria or gastrointestinal symptoms and had remained afebrile.

Malaria was excluded and numerous investigations for infections related to prosthetic vertebral fusion material as well as rheumatological conditions were negative. Due to bursitis, joint effusion and an increasing CRP, patient received intravenous antibiotic cover for Gram-positive organisms, as well as oral rifampicin.

A review of the travel history and consideration of the variety of clinical symptoms generated a search for schistosomiasis as a potential cause. Initial screening for schistosomiasis included serum antibodies, urine microscopy, stool microscopy, serum CAA (circulating anodic antigen) and urine CCA (circulating cathodic antigen). Only the urine CCA was positive. Serum antibody testing was repeated 11 days later and schistosomiasis IgM was positive. The patient never developed eosinophilia.

The patient took praziquantel for three days, which resulted in improvement of muscle stiffness, reduction in lymphadenopathy and resolution of joint effusion. The patient subsequently developed debilitating lumbosacral pain. Contrasted MR imaging of the spine confirmed sacro-iliitis and effusions associated with facet joints. This was ascribed to a secondary inflammatory post-treatment response. Immune modulation is a hallmark of schistosomiasis. Treatment with prednisone and sulphalazine was instituted.

The merits for the report include raising awareness of the atypical ways in which schistosomiasis may present, confounding factors such as the implications of the use of anti-malarials on the diagnosis, the interactions of rifampicin (a strong cytochrome P450 inducer) with praziquantel, response to treatment despite initial lack of evidence, symptoms which involved orthopaedic, surgical, dermatological and medical disciplines and finally also the implications for the travelling group to monitor for symptoms, test for infection or to remain vigilant with regard to chronic schistosomiasis during ensuing months to years.

Source: Paediatrician and Clinical Pathologist at Hermanus and Boland Laboratories; kobie.cronje@pathcare.org

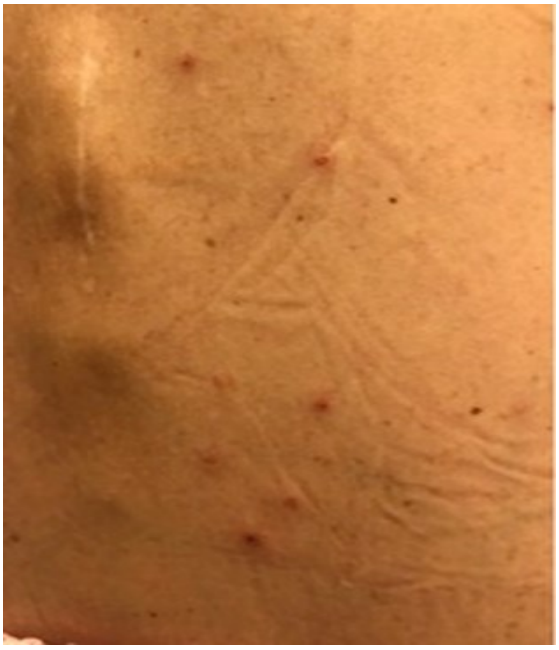

Figure 2a. Cutaneous lesions on back

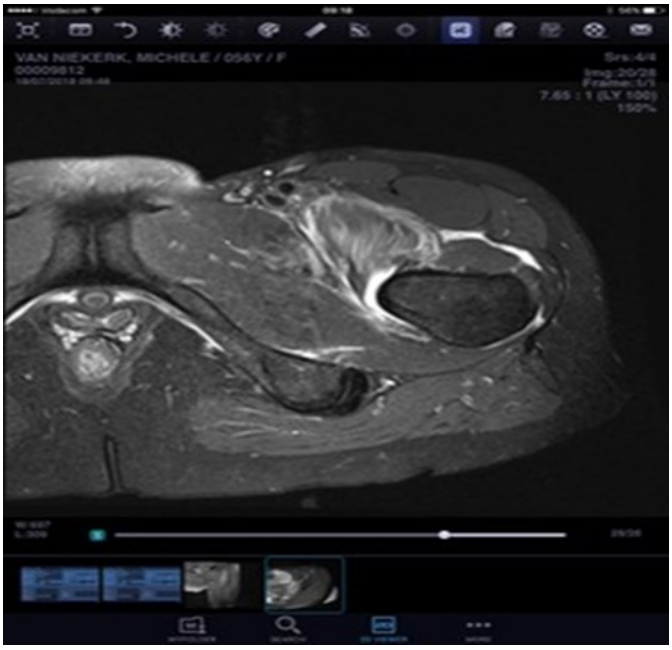

Figure 2b. Iliopsoas bursitis with joint effusion as initial presentation (MR)

2 VACCINE-PREVENTABLE DISEASES

a An update on the diphtheria outbreak in KwaZulu-Natal Province in March to April 2018: molecular typing results

During March - April 2018, a cluster of three respiratory diphtheria cases was reported from the Ethekwini District in KwaZulu-Natal Province [NICD Communiqué May 2018, Vol 17(5) and June 2018, Vol 17(6)]. Two cases were laboratory confirmed, including a 20-year-old male (who survived) and an epidemiologically-unlinked 10-year-old female, who demised. A third probable case, who demised without specimens being collected for laboratory confirmation, was an 11-year-old male residing in the same household and attending the same school as the 10-year-old confirmed case. Additionally, a 4-year-old male in the same household was identified as an asymptomatic *Corynebacterium diphtheriae* carrier. The three *C. diphtheriae* isolates from the cases and carrier were confirmed to be sequence type 378. This is the same sequence type that caused the KZN diphtheria outbreak in 2015 (du Plessis et al., 2017), two sporadic cases in the same KZN region in 2016 [NICD Communiqué May 2016, Vol 15(5)], and two epidemiologically-linked cases and a carrier in the Western Cape Province in 2017.

Diphtheria is a Category 1 notifiable medical condition (NMC) and we urge clinicians and healthcare workers throughout the country to have a high awareness of the suspected diphtheria case definition: any person who presents with an upper respiratory tract illness characterised by sore throat, low-grade fever and an adherent membrane ('pseudomembrane') of the nasopharynx, pharynx, tonsils or larynx. Cases are to be notified within 24 hours by completing the NMC case notification form (electronically or paper-based). Please e-mail a copy to NMCSurveillanceReport@nicd.ac.za and to your local or district Communicable Diseases Control focal person.

Additionally, we emphasise the need for contact tracing and nasopharyngeal/oropharyngeal swab collection from close contacts prior to the administration of chemoprophylaxis as asymptomatic contacts may be reservoirs of toxigenic *C. diphtheriae*.

Guidelines for diphtheria management and laboratory detection may be accessed at http://www.nicd.ac.za/index.php/diphtheria/

Please contact the NICD for additional information: Clinical queries: Dr Anne von Gottberg (011 555 0316, annev@nicd.ac.za) or NICD Hotline (082 883 9920).
Laboratory queries: Linda de Gouveia (011 555 0327, lindad@nicd.ac.za), Mignon du Plessis (011 555 0387, mignond@nicd.ac.za), or Nicole Wolter (011 555 0352, nicolew@nicd.ac.za)].

Reference
M. du Plessis, N. Wolter, M. Allam *et al*. Molecular characterisation of *Corynebacterium diphtheriae* outbreak isolates from South Africa, March – June 2015. *Emerging Infectious Diseases Journal* Aug 2017; 23(8): 1309-1315.

Source: Centre for Respiratory Diseases and Meningitis; NICD-NHLS; annev@nicd.ac.za

3 ENTERIC DISEASES

a An update on the outbreak of *Listeria monocytogenes*, South Africa

As of 14 August 2018, a total of 1 064 laboratory-confirmed listeriosis cases has been reported to NICD since 01 January 2017 (Figure 3). Most cases have been reported from Gauteng Province (58%, 612/1 064) followed by Western Cape (13%, 139/1 064) and KwaZulu-Natal (8%, 84/1 064) provinces. Cases have been diagnosed in both public (64%, 683/1 064) and private (36%, 381/1 064) healthcare sectors. Outcome is known for 828/1 064 (78%) patients, of whom 218 (26%) have died (Figure 4).

Females account for 56% (576/1 039) of cases where gender is reported. Where age was reported (n=1 043), ages range from birth to 93 years (median 19 years) – Figure 5. Neonates aged ≤28 days account for 43% (444/1 043) of cases. Of neonatal cases, 95% (424/444) had early-onset disease (birth to ≤6 days).

Although outbreak-related cases have declined sharply, sporadic cases (i.e. not epidemiologically linked) continue to be reported, as expected. Therefore, healthcare workers are encouraged to continue providing risk reduction guidance to persons at high risk for developing listeriosis (pregnant women, neonates ≤28 days of age, persons >65 years of age, and persons with immunosuppression (due to HIV infection, cancer, diabetes, chronic renal disease, chronic liver disease, transplantation and immunosuppressive therapy)). Such guidance includes advice on food hygiene (the World Health Organization's five keys to safer food is a useful resource for generic food hygiene advice) and avoidance of at-risk food.

The end of the outbreak is approaching, and the

activities of the listeriosis Incident Management Team are nearing completion. The following actions have been taken to strengthen health and environmental systems to ensure prevention and early detection of future outbreaks, particularly in ready-to-eat processed meat:

1) Listeriosis has been declared a notifiable medical condition under an amendment to the National Health Act;
2) The NICD has developed a system of surveillance and investigation of listeriosis cases including whole genome sequencing (WGS) of all isolates from laboratory-confirmed cases. This allows timeous identification of clusters which may represent outbreaks;
3) The NHLS has strengthened capacity to conduct food and environmental testing for *Listeria monocytogenes*;
4) Almost 900 environmental health practitioners in all health districts have been re-trained in inspection procedures, food safety systems, legislative aspects of food control and tools to support inspections including risk assessment tools and inspection checklists;
5) All production facilities that manufacture ready-to-eat processed meat in South Africa have been identified (n=158) and all but nine have been inspected by district environmental health practitioners, supported by a core incident management team;
6) An amendment to the Regulations pertaining to the application of the hazard analysis and critical control system (HACCP), (R908 of 2003) was published on 14 June 2018 requiring all producers of ready-to-eat processed meat to be HACCP certified by externally accredited agencies within nine months of publication of this act;
7) Risk communication activities including the dissemination of information pertaining to food safety, avoidance of certain foodstuffs by persons who are at risk for listeriosis, and training of health promotors have been conducted.

Further resources on listeriosis can be found on the NICD website at www.nicd.ac.za, Diseases A-Z, under 'Listeriosis'.

Source: Centre for Enteric Diseases, and Division of Public Health Surveillance and Response, NICD Provincial Epidemiology Teams; NICD-NHLS; Provincial CDCs; (junot@nicd.ac.za; outbreak@nicd.ac.za)

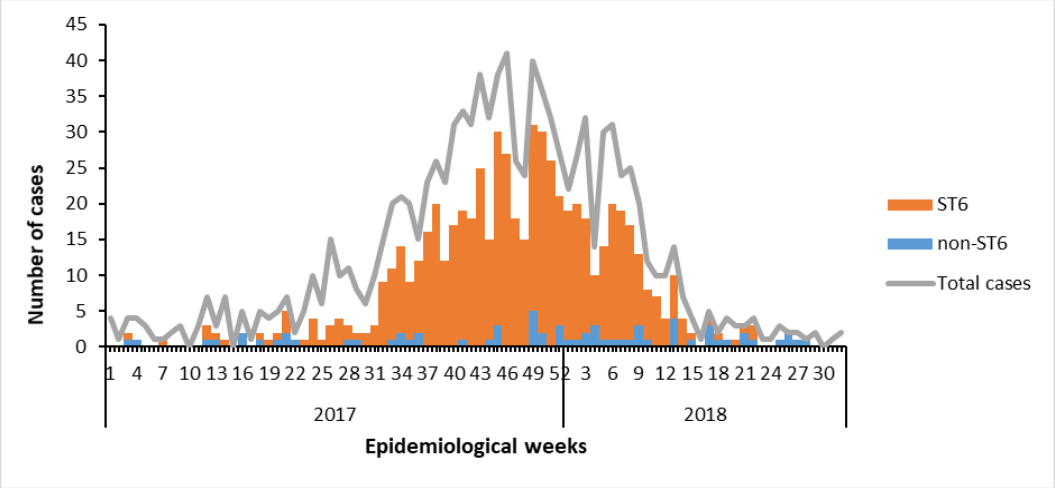

Figure 3. Epidemic curve of laboratory-confirmed listeriosis cases by date of clinical specimen collection (n = 1 064) and sequence type (ST) (n = 645) South Africa, 01 January 2017 to 14 August 2018.

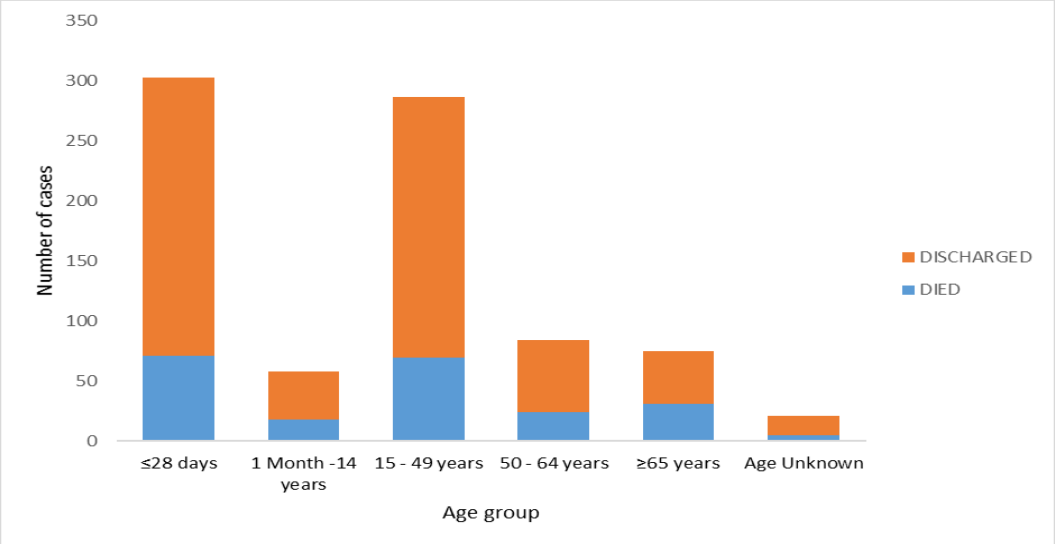

Figure 4. Outcome of laboratory-confirmed listeriosis cases by age group South Africa, 01 January 2017 to 14 August 2018 (n= 828, where outcome is known).

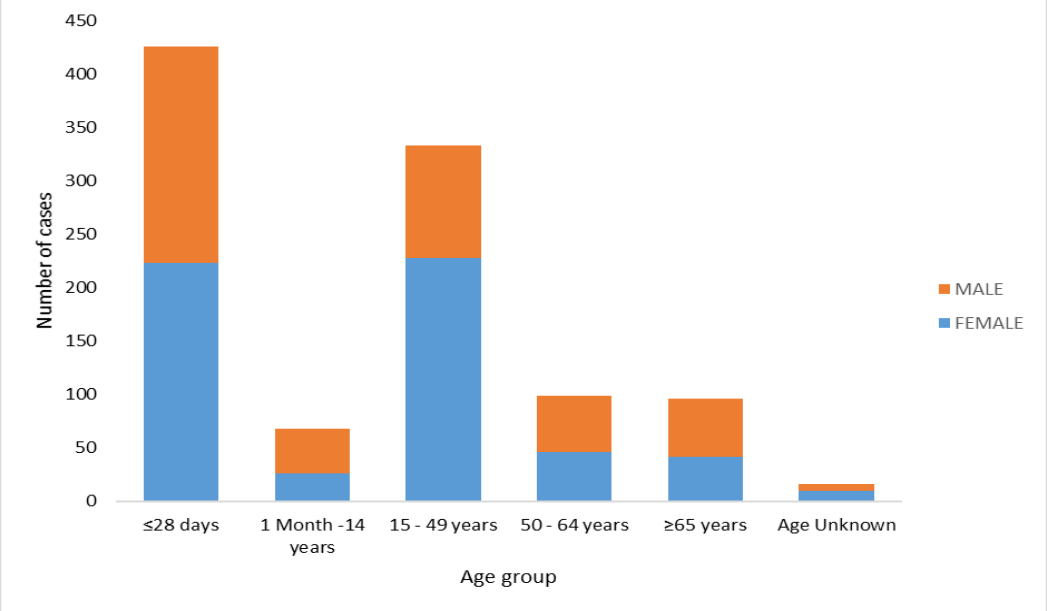

Figure 5. Age distribution of laboratory-confirmed listeriosis cases by gender, South Africa, 01 January 2017 to 20 July 2018 (n = 1 039, where gender is known).

b Increase in diarrhoeal cases, Mbombela Sub-district, Mpumalanga Province

On Sunday 22 July 2018, the Ehlanzeni Communicable Disease Coordinator (CDC) received a notification from the Tekwane South Clinic about an increase in diarrhoeal cases seen at the clinic. Approximately 53 diarrhoeal cases were seen by the clinic on 22 July 2018. Tekwane South Clinic is located in the Mbombela Sub-district, Ehlanzeni District, Mpumalanga Province.

The Tekwane South Clinic reported that the increase in diarrhoea cases started on Friday, 20 July 2018 (14 cases). After verification of the increase of diarrhoeal cases, the District Outbreak Response Team (DORT) was activated. Cases were predominantly from Tekwane South and Entokozweni areas in Mbombela Sub-district. As from 26 July 2018; more facilities started to report that they were exceeding their diarrhoea thresholds. All health care facilities (HCFs) in the Mbombela Sub-district were then requested to do zero reporting of diarrhoea cases daily.

An investigation was conducted with the aim to identify case patients, identify the aetiology, determine the magnitude of the outbreak, document exposures, identify risk factors and to suggest measures for long-term prevention. Activities conducted included epidemiological, environmental and laboratory investigations.

A total of 3 584 diarrhoeal cases was seen from health care facilities from 20 July 2018 – 20 August 2018 in Mbombela Sub-district (Figure 6). Among all the cases where age is known, 43% (1 499/3 489) were in children under the age of five. Cases were interviewed to identify possible exposures and risk factors. No common event attended by the cases could be identified. The cases complained about the intermittent water supply to the community, as well as the high turbidity of the water.

Results received for stool specimens indicate a multi-pathogen outbreak; the predominant pathogens detected include: rotavirus, *Shigella sonnei*, norovirus and adenovirus. Water specimens were taken after remedial actions were done. These were negative for coliforms and *Escherichia coli.* More results from stool and water specimens are still pending.

The outbreak investigation is still on-going. Health promotion teams are visiting the affected communities to educate the community about safe food preparation, good hygiene and boiling of water. Residual chlorine is continuously monitored at the water treatment plant and distribution system.

Source: Mpumalanga Department of Health, Division of Public Health Surveillance and Response, NICD Provincial Epidemiology Team, South African Field Epidemiology Training Programme and Centre for Enteric Diseases , NICD-NHLS (outbreak@nicd.ac.za)

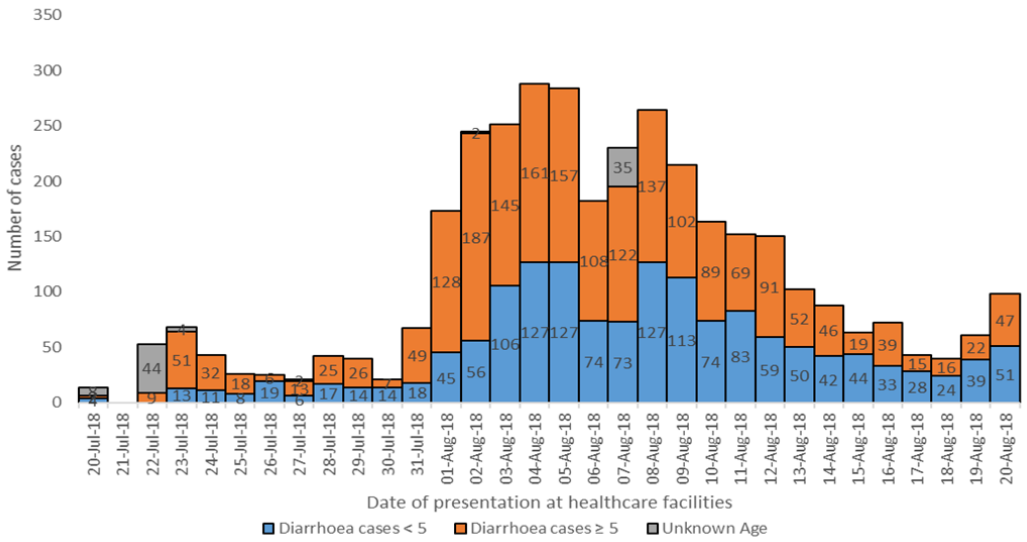

Figure 6. Epidemic curve of diarrhoeal cases presenting at PHCs and CHCs, Mbombela Sub-district, 20 July—20 August 2018

* Data to be verified from line lists submitted by the healthcare facilities

4 INTERNATIONAL OUTBREAKS OF IMPORTANCE

a Ebola virus disease outbreak, Democratic Republic of Congo

The Ebola virus disease (EVD) outbreak that was notified on 08 May 2018 in the Democratic Republic of Congo (DRC) had been declared over on 24 July following a period of 42 days without a positive case. Subsequently, the Ministry of Health (MoH) declared a new outbreak of EVD on 01 August 2018. As of 26 August 2018, a total of 111 confirmed and probable EVD cases, including 75 deaths (case fatality ratio 67.6%), have been reported. Of the 111 cases, 83 are confirmed and 28 are probable. Of the 75 deaths, 47 occurred in confirmed cases. A total of 15 healthcare workers have been affected, of which 14 are confirmed and one has died.

Mabalako Health Zone in North Kivu Province remains the epicentre of the outbreak, accounting for 77% (85/111) of all cases, including 64 confirmed and 21 probable cases. Additionally, four other health zones in North Kivu Province and one in Ituri Province have reported confirmed and probable cases. Vaccination efforts have been underway since 08 August 2018, and as of 27 August 2018, 4 130 people have been vaccinated. An experimental anti-viral drug (mAb114) is being used in Beni, yielding positive treatment outcomes. It is expected that the US-based manufacturers will deliver more doses in the coming weeks.

Public health response
The MoH is receiving support from WHO and partners in rapidly initiating response mechanisms in the affected areas. Priorities include the establishment and strengthening of surveillance, contact tracing, laboratory capacity, IPC, clinical management, vaccination, risk communication and community engagement, safe and dignified burials, response coordination, cross-border surveillance, and preparedness activities in neighbouring provinces and countries.

WHO risk assessment
This latest outbreak of EVD is affecting north-eastern provinces of the Democratic Republic of the Congo which border Uganda. Potential risk factors for transmission of EVD at the national and regional levels include the transportation links between the affected areas, the rest of the country, and neighbouring countries. The public health risk is thus assessed to be high at the national and regional levels, and low globally.

Situation in South Africa
As at 28 August 2018, there have been no EVD cases in South Africa associated with the current outbreak in the DRC. In addition, there are no suspected cases of EVD in South Africa at present.

Source: Division of Public Health Surveillance and Response (outbreak@nicd.ac.za); WHO: www.who.int

5 SEASONAL DISEASES

a Influenza

The 2018 influenza season, which started in week 18 (first week of May) is ongoing, although the number of specimens per week submitted by Viral Watch sites continues to decline.

Since the beginning of April a total of 447 influenza detections has been made, the majority of which has been influenza A(H1N1)pdm09, which was detected in 372 (83%) of patients. In addition, three influenza A detections are unsubtyped, due to low viral load; influenza A(H3N2) has been detected in 11 and influenza B in 61 patients. Since the middle of July influenza B has accounted for ≥50% of detections per week.

Although the season is coming to an end, it is never too late to vaccinate, and individuals who have not received influenza vaccine for 2018, especially those who are at risk of developing severe influenza illness or complications, are encouraged to get vaccinated. Recommendations on target groups, dosages and contraindications for the 2018 influenza vaccine, and influenza antiviral treatment are available in the 2018 influenza guidelines, available at http://www.nicd.ac.za/wp-content/uploads/2017/03/Influenza-guidelines-rev -23-April -2018.pdf

Source: Centre for Respiratory Diseases and Meningitis, NICD-NHLS; (cherylc@nicd.ac.za)

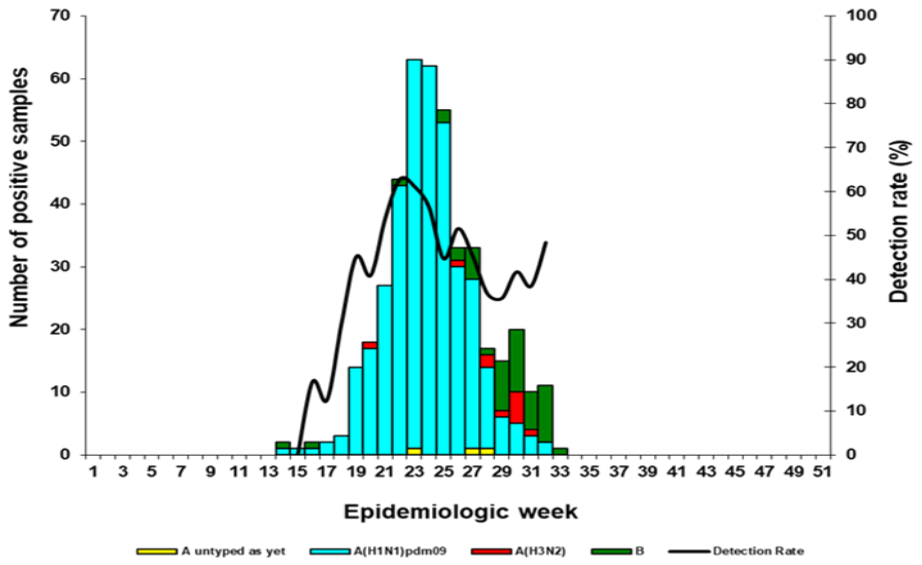

Figure 7.
Viral Watch 2018: Number of positive samples by influenza types and subtypes and detection rate*

*Only reported for weeks with >10 specimens submitted.

Patients known to have acquired influenza abroad or from contact with travellers are not included in the epidemiological curve.

b Invasive meningococcal disease surveillance update: January to July 2018

Meningococcal disease occurs most frequently in South Africa between May and October each year. Up until 31 July 2018, 61 cases of laboratory-confirmed invasive meningococcal disease (IMD) had been reported through the GERMS-SA surveillance network (31/61 (64%) since May 2018). This is similar to the 65 IMD cases reported in 2017 for the same period. Gauteng Province reported the highest number of cases (19), followed by the Eastern Cape (16), Western Cape (14) and KwaZulu-Natal (5) provinces. There were two cases each in Free State, Limpopo and Mpumalanga provinces and one in the Northern Cape Province. Twenty-five percent (15/61) of IMD occurred in infants, with a further peak seen in the 15-24 year age-category (9/61). Disease occurred equally amongst males and females. Sixty-seven percent (41/61) of IMD cases were cultured from cerebrospinal fluid, whilst the remainder were from blood cultures only. Of the cases with known serogroup (35/61), serogroup B was the most predominant serogroup (14), followed by W (10), Y (6) and C (5). There were two serogroup Y isolates that were resistant to penicillin (minimum inhibitory concentrations (MICs) >0.06µg/ml); however, all isolates were susceptible to 3rd generation cephalosporin and ciprofloxacin.

All patients presenting with symptoms suggestive of meningitis or bacteraemia should urgently receive appropriate antibiotic treatment targeting meningococcal disease, whilst awaiting laboratory confirmation of aetiology. As part of ongoing surveillance,

CRDM at the NICD offers meningococcal isolate confirmation and *Neisseria meningitidis* detection by PCR of culture-negative/autopsy cases, free of charge. For more information, please contact the CRDM laboratory at the NICD, 011 555 0327.

Meningococcal disease is a Category 1 notifiable medical condition (NMC). All clinically suspected cases of meningococcal disease should be notified immediately to the provincial Communicable Disease Control Coordinators to ensure appropriate contact tracing, responsible prescribing of chemoprophylaxis and case counting.

Source: Centre for Respiratory Diseases and Meningitis, NICD-NHLS; annev@nicd.ac.za

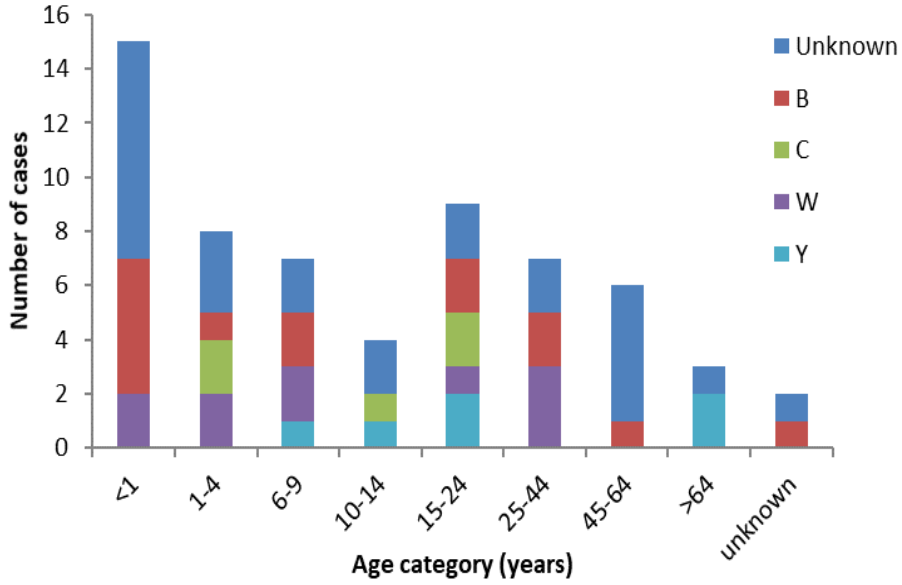

Figure 8. Invasive meningococcal disease in South Africa by age category and serogroup reported to GERMS-SA surveillance programme, 1 January 2018 –31 July 2018, n=61

6 MISCELLANOUS DISEASES OF INTEREST

a First human case of melioidosis in South Africa

We report the first human case of melioidosis detected in South Africa. A 36-year-old man, originally from Mpumalanga Province, presented with dizziness, nausea, weakness, coughing and inability to walk. He was admitted to a KwaZulu-Natal Province hospital on 09 July. He was HIV positive with a CD4 count of 18. His condition deteriorated and despite intensive medical care, he demised on 20 July. The pathogen was identified from blood culture by the NHLS microbiology laboratory and confirmed at the NICD by MALDI-TOF and electron microscopy. Subsequent whole genome sequencing indicated a new sequence type.

Meliodosis is endemic in tropical or subtropical regions of Australia, Western Pacific, Asia, Indian Ocean islands, and South and Central America. Sporadic cases have occurred in West and East Africa, but there is no sound epidemiological data about the burden or distribution of disease in Africa. The only previous case of melioidosis reported in South Africa was that of a goat, in 1995.

Meliodosis is caused by the environmental bacterium *Burkholderia pseudomallei*. Infected animals (horses, pigs, sheep, goats and rodents) may spread it to new areas, where it persists in water and soil. Barefoot farming in wet conditions and travel to endemic areas are risk factors. Predisposing conditions are diabetes, renal/liver disease, malignancy and immunosuppression. Clinical presentation includes pneumonia, cutaneous or visceral abscesses, and fatal septicaemia, and case fatality is high (40-75%), despite rational antibiotic therapy. No human-to-human transmission occurs. Prolonged incubation periods (days to years) make it difficult to identify the source of exposure.

Detailed information on the geographic and occupational history, and level of the deceased's contact with animals, soil or water, is pending.

Source: Edendale Hospital and NHLS Northdale; Centre for Emerging Zoonotic and Parasitic Diseases and Core Sequencing Facility, NICD-NHLS; johnf@nicd.ac.za

7 AN OUTBREAK OF NECROTISING ENTEROCOLITIS AT A HOSPITAL IN GAUTENG PROVINCE

a An update on the outbreak of necrotising enterocolitis of unknown aetiology in babies admitted to a neonatal unit in Gauteng Province, March—August 2018

An outbreak of necrotising enterocolitis (NEC) in a Gauteng hospital was reported to the NICD in April 2018. The number of cases has declined since June 2018 [NICD Communiqué May - July 2018]. One new NEC case was reported between 20 July to 20 August 2018 (Figures 9 and 10).

As of 20 August 2018, a cumulative total of 42 NEC cases, including 38 (90.5%) premature and four (9.5%) full-term babies have been reported, of which nine died (21.4%). Children under 1-month old (n=38) accounted for 90.5% of the cases, 9.5% (n=4) were aged between 1 – 2 months and 64% were males. Of the cases, 79% had a low birth weight (<1500g), 21% had birth weight >1500g and 33% were fed exclusively breast-milk. All the cases were definite NEC cases (stage II A-B and III A-B).

No specific pathogen has been identified as possible cause of NEC, though several pathogens were isolated from blood cultures. All stool samples were negative for enteric bacteria and viruses tested. The presence of *Bacillus* and *Streptococcus* species in mixed and dry powder milk formula (opened and unopened) is concerning; however, toxin production tests were not done.

Though the aetiology of the outbreak has not been identified, the decision was taken to declare the outbreak over as the number of cases has reached the acceptable base-line levels. Heightened surveillance, and strict adherence to infection prevention and control measures is highly recommended. Further laboratory investigation (bacterial quantification and toxin test) on opened and unopened milk formula was recommended to establish if it meets the international and national acceptable standards.

Source: Division of Public Health Surveillance and Response and Centre for Healthcare-associated infections, Antimicrobial Resistance and Mycoses, NICD-NHLS; Clinicians at a hospital in Gauteng Province; outbreak@nicd.ac.za

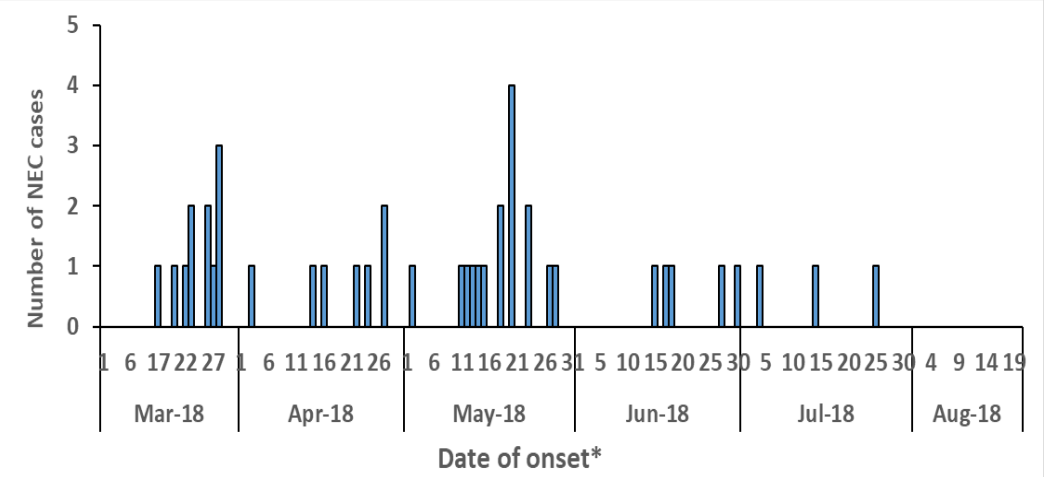

Figure 9. Epidemiological curve showing the number of NEC cases by date of disease onset, 1 March – 20 August 2018. (*Where date of onset was not known, date of diagnosis was used as a proxy (n=1)).

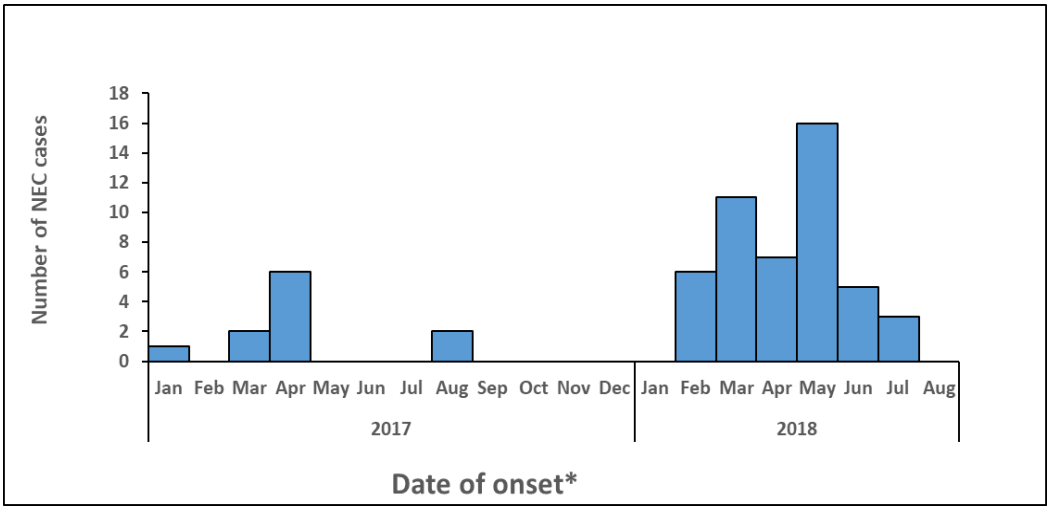

Figure 10. Epidemiological curve showing the number of NEC cases by date of disease onset, January – December 2017/ January – 20 August 2018. (*Where date of onset was not known, date of diagnosis was used as a proxy (n=1)).

8 THE STATE OF THE HIV EPIDEMIC IN SOUTH AFRICA

a Results of the Fifth South African National HIV Prevalence, Incidence, Behaviour and Communication Survey (SABSSM V) 2017

The most recent HIV prevalence and incidence data from the Fifth South African National HIV Prevalence, Incidence, Behaviour and Communication Survey (SABSSM V), conducted by the Human Sciences Research Council, was released on 17 July 2018. SABSSM V is the fifth survey in the series of household surveys conducted every 3-5 years since 2002, and provides information on national and sub-national progress toward HIV epidemic control in the country. The survey was a population-based, cross-sectional survey of households in South Africa, designed to assess the prevalence, incidence and trends of key HIV-related indicators. SABSSM V was conducted between January and December 2017.

Of 11 743 valid households, 82.2% completed a household interview. Of 13 669 eligible women, aged 15 to 64 years, 94.3% were interviewed and 67.7% provided a blood specimen for HIV-1 and additional testing. Of 10 801 eligible men, aged 15 to 64 years, 89.5% were interviewed and 58.4% provided blood specimen for testing. Of 11 845 eligible children aged 0 to 14 years, 56.0% were tested for HIV.

South Africa has a high-prevalence, heterosexually-driven, generalized HIV epidemic. Results from the survey have shown that approximately 7.9 million people of all ages were living with HIV (PLHIV) in South Africa in 2017. HIV prevalence among adults aged 15 to 49 years in South Africa was 20.6%; 26.3% among females and 14.8% among males. HIV prevalence among Black Africans was 16.6%; followed by Coloureds (5.3%); Whites (1.1%); and Indian/Asian (0.8%). The difference in HIV prevalence by sex is most pronounced among young adults: HIV prevalence among 20 to 24 year-olds is three times higher among females (15.6%) than males (4.8%). Among adults aged 15 to 49 years, HIV prevalence varies geographically across South Africa, ranging from 12.6% in Western Cape Province to 27.0% in KwaZulu-Natal Province.

Annual incidence of HIV infection among adults aged 15 to 49 years in South Africa was 0.79%: 0.93% among females and 0.69% among males. This corresponded to approximately 199 700 people newly infected with HIV aged 15 to 49 years in 2017. There was an overall decline in incidence (44%) in the 15-49 age group when compared to the 2012 results. The decline was greater in females (56% decline) compared to males (18% decline). The incidence in females aged 15-24 was 1.51% and declined by 26% from 2.04% in 2012 whilst in males the decline was 17% from 1.2% to 1.0%. Nevertheless, this age group accounts for 38% of all new annual infections with 66 000 new infections in females and 22 000 infections in males.

The estimated number of people on antiretroviral therapy (ART) was 4 401 872, or 62.3 % of people living with HIV. The viral suppression rate was 87.3% of those who were on treatment; however viral suppression was lower in males (82.4%). The overall viral suppression of PLHIV was 62.3%. The UNAIDS 90-90-90 targets were 84.9% of PLHIV knew their HIV status, 70.6% of those who knew their status are on ARV treatment and of those on treatment 87.5% were virally suppressed.

Source: Centre for HIV and STIs, NICD-NHLS; adrianp@nicd.ac.za

9 VIRAL HEPATITIS C FOR KEY POPULATIONS IN SOUTH AFRICA

a Results of the HCV survey

TB HIV Care, the University of Cape Town, Anova Health Institute, OUT Well-being and the National Institute for Communicable Diseases, funded by the Bristol-Myers Squibb Foundation, conducted a cross-sectional hepatitis study among key populations in seven cities. Overall, 3 443 men who have sex with men (MSM), sex workers (SWs) and people who use drugs (PWUD), including people who inject drugs (PWID), were recruited. The study estimated hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV prevalence. Socio-demographic data were collected and point-of-care testing performed for HBV, HCV and HIV. HCV confirmation and genotyping occurred centrally.

Participants were predominantly male (52%) and black (61%). SWs were largely female (96%) with few female PWID and PWUD (13% and 19% respectively). Most PWID (67%) and PWUD (53%) were homeless. HIV, HBV and HCV prevalence were 37%, 4% and 13% respectively. HIV prevalence was highest amongst SWs and MSM (47% and 43%, respectively), lowest in PWUD (13%). HBV prevalence was similar across groups. Almost half (45%) PWID had HCV infection (Durban 29%, Cape Town 33% and Pretoria 73%) (Figure 11). HCV genotypes 1a (67%) and 3a (14%) predominated. Overall, 2 646 people received one HBV vaccination.

Few participants (<1%) accessed treatment referrals. Qualitative interviews found that, despite 95% of interviewees intending to seek treatment, only 25% did. Reasons included previous stigmatisation, low sense of self-worth, and insufficient HCV understanding.

High HCV prevalence, low referral uptake and limited HCV knowledge support the need for expanded, comprehensive, community-based HCV services, particularly for PWID in South Africa.

Source: Centre for HIV and STIs, NICD-NHLS; adrianp@nicd.ac.za; TB HIV Care, andrew.scheibe@gmail.com

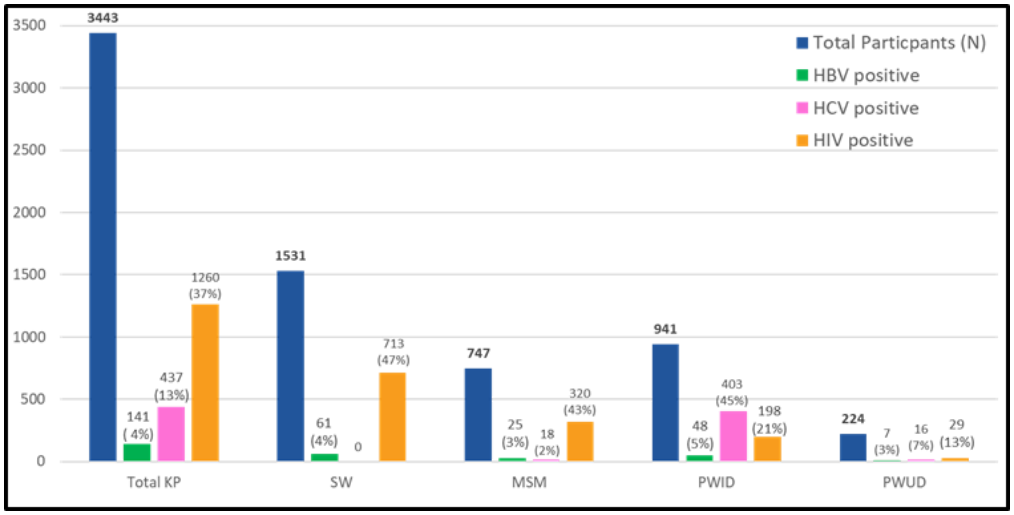

Figure 11. HBsAg, HCV and HIV prevalence by key population, seven South African cities, 2016/17 (n=3 443)

10 BEYOND OUR BORDERS

The 'Beyond our Borders' column focuses on selected and current international diseases that may affect South Africans travelling abroad. Numbers correspond to Figure 12 on page 13.

1. West Nile virus: Europe/ Greece
A total of 77 cases of the West Nile virus infection has been recorded in Greece since the beginning of their summer [2018], 17 in the week 13-16 August. The virus, which is carried by infected mosquitoes, has also spread geographically to 33 municipalities. In most cases, those infected have suffered problems with their central nervous system, mainly forms of encephalitis or meningitis. In the week 13-16 August, two deaths among people aged over 70 were reported.

2. Malaria: India/Mumbai
The city of Mumbai has reported 415 malaria cases for the month of August 2018. The city recorded the first death due to malaria this year [2018] after a 52 -year-old housekeeper from Worli Koliwada died of respiratory failure on 06 August 2018, one week after onset of fever and chills. Malaria is endemic in the slum areas of the city.

3. Lassa Fever: Nigeria
The Nigeria Centre for Disease Control (NCDC) on 09 August 2018 confirmed nine new cases of Lassa fever with two deaths, in one week. The first case was confirmed in Enugu State on 06 August 2018. Virus transmission to humans occurs when people are in contact with the reservoir rodent hosts (genera *Mastomys* and *Hylomyscus*) or their excreta. The Centre noted that a total of 6 383 contacts has been identified from 22 states. Of these, 439 (6.9%) are currently being followed up, 5 846 (91.6%) have completed 21 days follow-up while 10 (0.2%) were lost to follow-up. A public sensitisation campaign has been carried out.

4. Typhoid: Zimbabwe
Since 23 July 2018, 350 people have tested positive for typhoid in Gweru, the third largest city in Zimbabwe, five of which have died. The disease was initially thought to be confined to four villages of the city, however, officials have said it has now spread to all parts of the city. Preliminary investigations suggest the outbreak was caused by the widespread consumption of contaminated water from council taps and boreholes. The government will provide water treatment pills, and the municipal authorities have been advised to provide water tankers to provide residents with clean drinking water.

5. Yellow Fever: Republic of the Congo
Republic of the Congo has a first confirmed case of yellow fever (YF) since 2013. According to WHO, one laboratory-confirmed human case of YF occurred on 05 July 2018 in Pointe-Noire. The case had travelled to a rural area in Kouilou near the border with Angola prior to symptom onset. More than 180 suspected cases have been reported since January 2018 in Pointe-Noire (urban areas) and Kouilou (urban and rural areas); only a few of these cases have been tested for YF. The last human YF case was reported in 2013; the last outbreak occurred in 2011. Vaccination for travellers aged ≥ 9 months going to Republic of the Congo is highly recommended.

Source: (www.promed.org) and the World Health Organization (www.who.int)

Figure 12. Current outbreaks that may have implications for travellers. Numbers correspond to text above. The red dot is the approximate location of the outbreak or event.

11 WHO-AFRO: OUTBREAKS AND EMERGENCIES

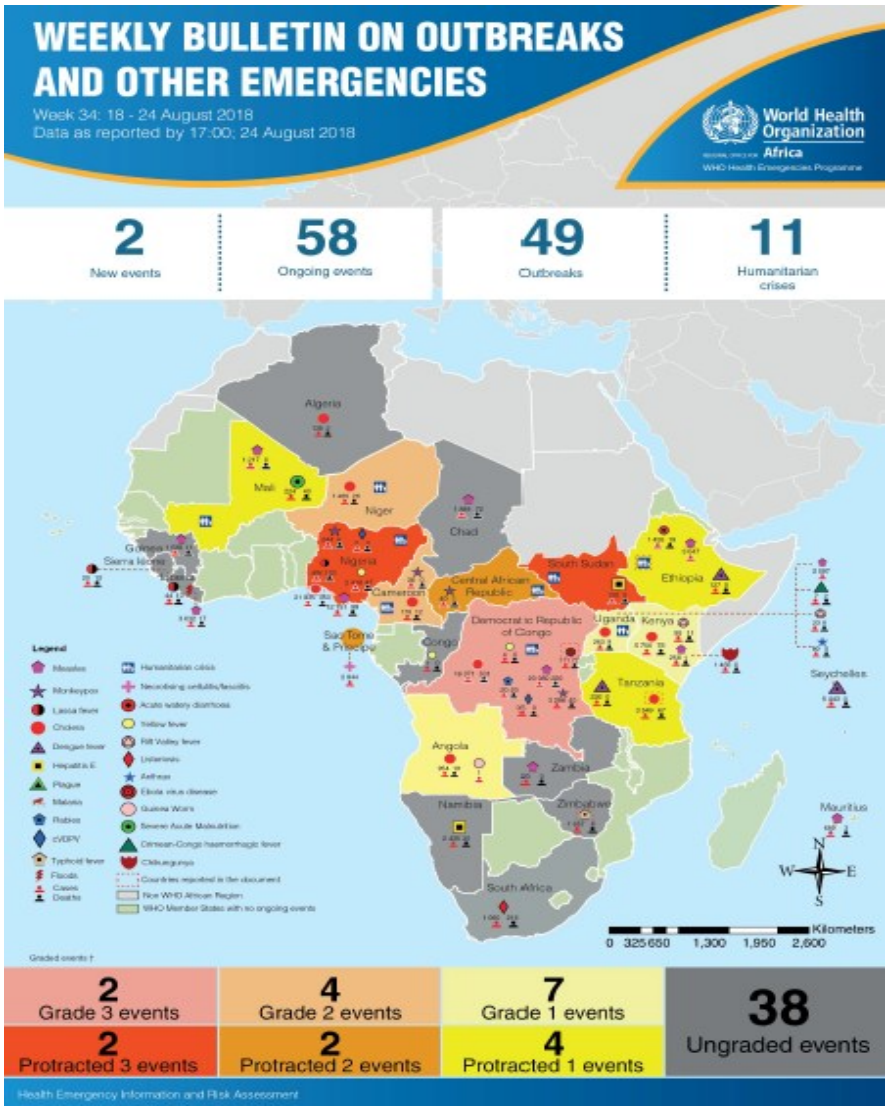

Figure 13. The Weekly WHO Outbreak and Emergencies Bulletin focuses on selected public health emergencies occurring in the WHO African Region. The African Region WHO Health Emergencies Programme is currently monitoring 60 events, of which 49 are outbreaks and 11 humanitarian crises. For more information see link: http://apps.who.int/iris/bitstream/handle/10665/274276/OEW34-1824082018.pdf